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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,013	07/19/2005	Yuxiang Zhou	051082-0102	2752

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FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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AJIBADE AKONAI, OLUMIDE

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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09/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,013	<b>Applicant(s)</b> ZHOU, YUXIANG	
	<b>Examiner</b> OLUMIDE T. AJIBADE AKONAI	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 22 2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1, 4, 5, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Nguyen 6,947,758**.

Regarding **claims 1 and 7**, AAPA discloses a method for assigning (and searching) a mobile subscriber roaming number to a mobile subscriber (see page 1 of the specification, lines 24-27), wherein said mobile subscriber roaming number is a temporary number for routing which is assigned by a visitor location register which the mobile subscriber is currently registered with when the mobile subscriber is called (see page 1 of the specification, lines 24-28, page 2 of the specification, lines 13-17), said mobile subscriber roaming number comprises a country code, a number of a mobile switching center and a visitor location register sub-number (page 2 of the specification, lines 24-31, MSRN=CC + MSC number + record number of MSRN information table).

The AAPA does not disclose wherein in a visitor location register, the mobile subscriber roaming numbers are managed by a plurality of visitor location register modules and each visitor location register module in said visitor location register has a visitor location register module number for identification, characterized in that: assigning said mobile subscriber roaming number which comprises said Visitor Location Register module number corresponding to the Visitor Location Register module that manages said mobile subscriber roaming number; and said Visitor Location Register module number is utilized to directly determine the correspondence relationship between said assigned mobile subscriber roaming number and the Visitor Location Register module that manages said mobile subscriber roaming number.

Nguyen however discloses a visitor location register (VLR) (740, see fig. 7, col. 9, lines 60-63) that comprises a plurality of smaller VLR units/modules (see fig. 7, col. 10, lines 7-14), wherein the Visitor location Register units/modules manage

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Temporary Mobile Station Identification (TMSI) numbers (VLR units/modules storing the temporary mobile subscriber identification, see col. 10, lines 32-44), wherein the TMSI number comprises a visitor location register module number corresponding to the visitor location register module that manages said TMSI (TMSI-Q, TMSI-R, TMSI-N with the VLR address embedded in the numbers, the TMSI including the extra number that identifies the VLR unit/module within the VLR, see fig. 7, col. 10, lines 45-67, col. 11, lines 1-4), and said Visitor Location Register module number is utilized to directly determine the correspondence relationship between said assigned mobile subscriber roaming number and the Visitor Location Register module that manages said mobile subscriber roaming number (TMSI-Q, TMSI-R, TMSI-N with the VLR address embedded in the numbers, the TMSI including the extra number that identifies the VLR unit/module within the VLR, see fig. 7, col. 10, lines 45-67, col. 11, lines 1-4).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nguyen, by appending the MSRN with extra integers, into the system of AAPA for the benefit of identifying which VLR unit out of a plurality of VLR units a MSRN is assigned to a mobile subscriber is associated with.

Regarding **claim 4**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein said visitor location register is a multi module clustered distributed real time database (see fig. 7, col. 10, lines 7-14).

Regarding **claim 5**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein the length of the module number of said visitor location register module may be one bit or multiple bits (see col. 10, lines 45-66).

Regarding **claim 8**, as applied to claim 7, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses the said method comprising the following steps: based on said mobile subscriber roaming number, a Visitor Mobile Switching Center initiates a query to the Visitor Location Register module corresponding to said mobile subscriber roaming number (see col. 10, lines 45-67, col. 11, lines 1-4); said Visitor Location Register module searches the information of corresponding mobile subscriber based on said mobile subscriber roaming number and returns it to said Visitor Mobile Switching Center (see col. 10, lines 45-67, col. 11, lines 1-4).

Regarding **claim 10**, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses wherein said searching step further comprising: said Visitor Location Register module obtains the VLR sub-number in said mobile subscriber roaming number, and obtains the information of said mobile subscriber in the record of the mobile subscriber roaming number information table corresponded to said VLR sub-number and returns it to said Visitor Mobile Switching Center; said Visitor Location Register module releases said VLR sub-number (see fig. 7, col. 11, lines 1-14).

4. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Applicant's**

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**Nguyen 6,947,758** as applied to claims 1 and 7 above, and further in view of **Lahtinen 6,148,200**.

Regarding **claims 2 and 9**, as applied to claims 1, 7 and 8, AAPA as modified by Nguyen discloses the claimed limitation. Nguyen further discloses said Visitor Location Register forwards a request to one of the Visitor Location Register modules (see col. 11, lines 1-14); said Visitor Location Register module records the information corresponding to said mobile subscriber and obtains its corresponding VLR sub-number (TMSI-R+1, see col. 11, lines 1-14); said Visitor Location Register module generates a mobile subscriber roaming number (see col. 11, lines 1-14) said mobile subscriber roaming number comprising said VLR sub-number (see col. 10, lines 45-67), the module number of said Visitor Location Register module (see col. 10, lines 45-67, col. 11, lines 1-4). AAPA as modified by Nguyen does not specifically disclose the steps of, said Visitor Location Register receives from a Home Location Register a request to assign a roaming number for a mobile subscriber; said mobile subscriber roaming number comprises a country code, and the number of a Mobile Switching Center where said mobile subscriber is in, said Visitor Location Register module returns said mobile subscriber roaming number to said Home Location Register.

Lahtinen, however discloses said Visitor Location Register (physical VLR see figs. 2 and 3, col. 3, lines 1-5) receives from a Home Location Register (HLR see fig. 3, col. 3, lines 13-20) a request to assign a roaming number (provide roaming number request, see fig. 1, col. 1, lines 52-56) for a mobile subscriber (MS, see fig. 3); said mobile subscriber roaming number comprises a country code (NCC, see col. 3, line

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40), the number of a Mobile Switching Center where said mobile subscriber is in (NDC, see col. 3, line 41); said Visitor Location Register module returns said mobile subscriber roaming number to said Home Location Register (see col. 1, lines 59-67, col. 3, lines 40-54).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lahtinen into the system of AAPA as modified by Nguyen for the benefit of reducing the load of the visitor location registers.

Regarding **claim 3**, as applied to claim 2, AAPA as modified by Nguyen and Lahtinen disclose the claimed limitation. Nguyen further discloses recording step further comprising: said Visitor Location Register module records the information of said mobile subscriber in an idle record in a mobile subscriber roaming number information table, and obtains the VLR sub-number corresponding to said record (see fig. 7, col. 10, lines 45-63).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art (hereinafter AAPA)** in view of **Nguyen 6,947,758** as applied to claim 1, and further in view of **Lahtinen 6,157,832**.

Regarding **claim 6**, as applied to claim 1, AAPA as modified by Nguyen discloses the claimed limitation except wherein the length of said mobile subscriber roaming number is not longer than 15 bits.



In an analogous art, Lahtinen discloses wherein the length of said mobile subscriber roaming number is not longer than 15 bits with extra/additional digits to the conventional MSRN (see col. 6, lines 6-12).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lahtinen, by adding extra bits such that the number of bits is still within 15 for purpose of transferring the MSRN in a GSM message.

### ***Response to Arguments***

6. Applicant's arguments filed January 29, 2009 have been fully considered but they are not persuasive. Regarding claims 1 and 7, the applicant's representative asserts that Nguyen fails to disclose, teach or suggest a VLR number as claimed. Specifically, the applicant's representative asserts that the TMSI-N is not analogous to the VLR number as claimed and Nguyen fails to disclose assigning said MSRN comprising said VLR module number, the VLR module number corresponding to the visitor location register module that manages MSRN and is utilized to determine the correspondence relationship between said assigned MSRN number and the VLR module in said VLR that manages said MSRN. The examiner respectfully disagrees. Nguyen clearly discloses a VLR comprising a plurality of VLR units for handling a plurality of TMSI numbers. The TMSI numbers are appended with an integer and assigned to telephone numbers (see fig. 7, col. 10, lines 32-63). The MSC is able to identify which a VLR unit associated with a call to a telephone number because each telephone number stored in the VLR unit has been assigned a TMSI number and the number appended to the TMSI

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number (i.e., TMSI-Q, TMSI-R...TMSI-N, see fig. 7, col. 10, lines 32-63) is used to identify the VLR unit associated with the TMSI number (see col. 10, line 64 - col. 11, line 14). The examiner therefore maintains that the number appended to the TMSI is reads on the applicant's claimed limitation of "VLR module number" because this number is used to identify the VLR unit associated/storing the TMSI number. The applicant's admitted prior art as modified by Nguyen's teaching of identifying VLR units within a VLR using the TMSI number with extra digit(s) appended to it reads on assigning said MSRN comprising said VLR module number, the VLR module number corresponding to the visitor location register module that manages MSRN and is utilized to determine the correspondence relationship between said assigned MSRN number and the VLR module in said VLR that manages said MSRN as claimed. Claims 1-8 thus stand rejected.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUMIDE T. AJIBADE AKONAI whose telephone number is (571)272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OA

/Rafael Pérez-Gutiérrez/  
Supervisory Patent Examiner, Art Unit 2617